

CLAIMS:

1. A ventilator for supplying breathable gas to the airway of a patient with a respiratory disorder, comprising:

5 a gas flow generator for generating a flow of said breathable gas to the patient, said gas flow generator comprising a gas flow generator chamber provided with a gas inlet opening and a gas outlet opening;

a control valve for controlling the flow and/or pressure of the gas distributed to the patient, said control valve comprising a valve body which is rotatably arranged about a rotational axis within a valve chamber, wherein

10 the rotational axis of the valve body is substantially perpendicular to the exhaust direction of the breathable gas at the gas outlet opening of the gas flow generator;

the valve body essentially exhibits the shape of a sector of a circle in a plane perpendicular to said rotational axis in such a way that an arced first flow regulatory surface is formed along the circular arc of said sector, and that second and third essentially straight flow regulatory surfaces, respectively, are formed along the two diverging sides of said sector;

15 said valve chamber exhibits two mutually opposing, essentially flat sidewalls both extending in a plane perpendicular to said rotational axis of the valve body, and

first, second and third valve body abutment surfaces (A, B, C), respectively, extend between said sidewalls of the valve chamber, said valve body abutment surfaces (A, B, C) being arranged for abutting contact with the arced first flow regulatory surface of the valve body, depending on the angular position of the valve body within the valve chamber, wherein

20 said first valve body abutment surface (A) is located on one side of an inlet opening to the valve chamber. said inlet opening being connected to the gas outlet opening of the gas flow generator chamber;

30 said second valve body abutment surface (B) is located between said inlet opening and a bypass opening arranged for directing a portion of the gas flow back into said gas flow generator via a bypass conduit connected to the gas inlet opening of the gas flow generator chamber, and

said third valve body abutment surface (C) is located on an opposing side of said bypass opening with respect to said second valve body abutment surface (B).

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2. The ventilator according to claim 1, wherein the valve body exhibits rounded transitional portions between the arced first flow regulatory surface and the second and a third essentially straight flow regulatory surfaces.

3. The ventilator according to claim 1, wherein the valve body is formed in such a way that a sector angle between the second and third flow regulatory surfaces is between 90°-160°.
- 5 4. The ventilator according to claim 3, wherein said sector angle is between 110°-130°.
5. The ventilator according to claim 3, wherein said sector angle is 120°.
- 10 6. The ventilator according to claim 1, wherein said gas flow generator chamber and said valve chamber are integrally formed in a combined gas flow generator and control valve housing. and
said valve chamber is located in immediate conjunction to the gas outlet opening of the gas flow generator chamber within said combined gas flow generator
15 and valve housing.
7. The ventilator according to claim 6, wherein said gas outlet opening of the gas flow generator chamber also defines an inlet opening to said valve chamber.
- 20 8. The ventilator according to claim 1, wherein said rotational axis of the valve body is parallel to a rotational axis of a fan rotor wheel in said gas flow generator chamber.
9. The ventilator according to claim 6, wherein an electric stepper motor is
25 attached to the combined gas flow generator and control valve housing, said electric stepper motor having a stepper motor shaft coupled to the valve body in said valve chamber.
10. The ventilator according to claim 9, wherein the valve body is provided with a
30 through hole, said through hole having a cross-sectional shape such that the valve body is rotationally fixed relative to the stepper motor shaft, whilst being freely slidably arranged in an axial direction of said stepper motor shaft for easy insertion or removal of the valve body in the valve chamber.